

CLAIMS

1. A vascular catheter lumen patency device comprising:
a fluid chamber for containing a fluid under pressure;
a valve member for controlling the flow of fluid into the chamber; and
an outlet from the chamber adopted to communicate with the lumen of an indwelling vascular catheter, such that fluid is allowed to exit said chamber at a rate so as to keep open the lumen of an attached catheter when it is not being used for treatment.
2. The device of claim 1 further comprising a fluid permeable filter disposed to prevent particulate matter from being introduced into said catheter lumen.
3. The device of claim 2, wherein said device defines at least three regions, a first region for receiving said valve member, a second region being the fluid chamber, and a third region for receiving said fluid permeable filter.
4. The device of said claim 1 further comprising a self-sealing port in said valve member for allowing introduction of fluid into said fluid chamber and preventing the escape of fluid therefrom.
5. The device of claim 1 wherein said valve member is formed of an elastomeric material.

6. The device of claim 1 further comprising a male luer lock, with a through passageway therein communicating with the fluid chamber for transmitting fluid from the chamber to the lumen of the catheter when connected thereto.
7. The device of claim 6 further comprising a female luer lock connector, wherein when said female luer lock is connected to said male luer lock, fluid is prevented from exiting said fluid chamber.
8. The device of claim 1 wherein said fluid is a gas.
9. The device of claim 8 wherein said gas is an inert gas.
10. The device of claim 9 wherein said gas is selected from the group consisting of CO₂ and N₂.
11. The device of claim 1 wherein the outlet includes a port sized to allow fluid to flow from the fluid chamber at a selected keep open rate.
12. A cap for a vascular catheter lumen comprising:
 - a cap body with a first end and a second end for connection to said catheter lumen;
 - an elastomeric plug located at the first end of said cap body;

a fluid storage chamber located adjacent to said elastomeric plug in said cap body; and

a fluid permeable filter and a through hole located at said second end of said cap body and adjacent to said fluid storage chamber,

wherein said fluid storage chamber is filled with a fluid, said elastomeric plug prevents the fluid from exiting said cap through first end, and said fluid is allowed to exit said second end of said cap through said filter and through hole and into said catheter lumen at a rate regulated by said through hole so as to keep said lumen open.

13. The cap of said claim 12 further comprising a port located at the first end of said cap body and located in said plug for filling said fluid into said fluid storage chamber, wherein said elastomeric plug seals itself after introduction of said fluid to prevent said fluid from exiting said first end of said cap.

14. The cap of claim 12 wherein said through hole is located within a male luer lock.

15. The cap of claim 14 further comprising a female luer lock, wherein said female luer lock and said male luer lock combine to prevent fluid from exiting said second end of said cap when said cap is not in use.

16. The cap of claim 12 wherein said fluid is a gas.

17. A device for maintaining patency of a vascular catheter lumen comprising:
a body portion defining a gas chamber;
an elastomeric member in communication with the gas chamber;
a liquid chamber with a liquid tight plunger slidably disposed therein; and
an outlet from said liquid chamber adapted to be placed in communication
with a catheter lumen,

wherein the pressure of gas in the gas chamber is applicable against the
plunger to force liquid from the liquid chamber through the outlet.

18. The device of claim 17, wherein said device is divided into three regions,
a first region for receiving said elastomeric member, a second region being the
gas chamber, and a third region defining said liquid chamber and containing said
plunger.

19. The device of said claim 17 further comprising a self-sealing port located
in the elastomeric member for allowing the introduction of gas into said gas
chamber and preventing gas from exiting therefrom.

20. The device of claim 17 further comprising a male luer lock for attachment
to a vascular catheter, with a through hole therein sized to regulate the rate in
which the liquid leaves said device and enters a catheter lumen.

21. The device of claim 17 wherein said gas is an inert gas.
22. The device of claim 21 wherein said gas is selected from the group consisting of CO₂ and N₂.
23. The device of claim 17 wherein said liquid is biocompatible.
24. The device of claim 23 wherein said liquid is selected from the group consisting of heparin, saline, sterile water, distilled water, and a mixture of two or more of these liquids.